

AR-745

**Memorandum**

Date: 12/12/01  
 From: Mark Stein  
 To: Brayton Point NPDES Permit File  
 Re: Brief Notes on an Issue Discussed During Conference Call with John Gulvas of Consumers Energy and the Palisades Nuclear power station in Covert, Michigan

I listened in to a conference call initiated and run by Tim Connor of EPA HQ with Mr. Gulvas of Consumers Energy - Palisades Nuclear. The discussion covered many issues. See notes and memoranda regarding this call. I, however, asked a question regarding the issue of water vapor or mist plumes and icing. This memo addresses that issue.

Palisades Nuclear is on Lake Michigan. Initially it had a once-through cooling system, but it later retrofitted to an entirely closed-cycle cooling system using mechanical draft cooling towers.

I asked whether the plant had ever had any problems with icing from water vapor or mist plumes from the cooling towers, especially on any nearby roadways (if any).

Mr. Gulvas explained that this had not been a problem. He said that US Expressway 31 runs by the plant approximately within a 1/2-mile and icing had not been a problem on that road or nearby overpasses. They had never had to shut down to address an icing issue. He said that any icing effects were very localized on the plant site: some trees iced up and died within around 50 yards from the cooling towers. He said plumes from the shorter mechanical draft towers (i.e., shorter than the tall natural draft towers) don't travel that far.

(Obviously, up in Michigan it gets cold enough to cause icing and they would have the moisture contributions from Lake Michigan as well.)

He also said that the plant was an example of the success of retrofitting to cooling towers in order to reduce biological impacts to fish; and also the benefits of choosing an intake location that is in a less biologically productive area.

Calendar Entry:

## Meeting

Subject: Palisades Nuclear Plant OT to Recirc Conversion      Location: TBD  
Begins: Wed 12/12/2001      11:00 AM      Entry type: Meeting  
Ends: Wed 12/12/2001      12:30 PM  
Chair: Timothy Connor/DC/USEPA/US

### Invitations already sent

To: Ashley Allen/DC/USEPA/US@EPA, Deborah Nagle/DC/USEPA/US@EPA, Mark Stein/R1/USEPA/US@EPA, Tc Wall/DC/USEPA/US@EPA

cc:

- Pencil In      Time will appear free to others.  
 Mark Private      Others cannot see any details about this event.  
 Notify me      Have Notes notify you before the event.
- Categorize:

### Description:

A conference call with John Gulvas of Consumers Energy regarding the conversion of Palisades Nuclear from once-through to recirculating. John, a biologist, participated in the once-through vs recirculating I&E studies conducted at the plant back in 1974/75. He will attempt to find information about and/or an engineer who is familiar with the construction/conversion process.

In addition, Palisades recently completed follow-up impingement studies for their submerged off-shore intake and would like to discuss this information in addition to the conversion. John has been helpful in the past providing information for J R Whiting and the Luddington Pump storage plants, so I expect both the conversion and the recent impingement study discussions to be interesting. I am slightly confused about when the intake was moved far offshore.

From what I understand, John indicated that the licensing agreement was contingent upon conversion from once-through to recirculating occurring after start-up. In addition, Ashley found a quote from a reference stating, "The cooling towers were constructed to satisfy the intervenors' concern for possible environmental damage..." Perhaps there is a correlation. We'll learn more on Wednesday. We will share with Region I whatever information we find before and/or after the meeting.

Sorry about scheduling this thing through lunch, but I forgot to convert from central to eastern time when making the agreement with John. This time is best for him. Hence, I did not send out "feelers" to see if people were available...had to run with the opportunity.

Here is some public information for Palisades (from their NON-cbi short questionnaire, E-GRID 2000, and NUREG-1437), note the location for a good laugh:

Number of CWIStructures:	1
Average Annual Intake (1996-1998):	79 MGD
Design Intake Velocity:	0.22 fps
Type of Intake:	submerged offshore
Type of intake control technology:	vertical traveling screens
Type of cooling water system:	recirculating with cooling towers
Number of Generating Units:	1
Online Year of Generating Unit:	1972

License Expiration: 2012  
Electrical Rating: 805 MW(e) (811 MW, Nameplate)  
Reactor Type: PWR  
Type of Cooling Tower: Mechanical Draft  
Steam System Vendor: CE  
Cooling Water Source: Lake Michigan  
Condenser Flow: 405,000 gpm  
Intake Distance from shore: 3,300 feet  
Total Plant Site Area: 487 acres  
Operating days: 310 in 1996, 321 in 1997, and 298 in 1998  
Capacity Factors: 0.744 in 1996, 0.812 in 1997, and 0.754 in 1998  
Annual Generation (in MWh): 5,290,000 in 1996; 5,780,000 in 1997; and 5,360,000 in 1998  
Location: Covert, Michigan  
NERC Region: ECAR  
Ownership: Consumers Energy

Cheers,  
Tim

12/12/10

# Tel Gf

- Tim Gann EPA  
+ John ~~Galvez~~ <sup>Galvez</sup> of Brown's Ferry  
at Petoskey NMI in  
Count Michigan

Why more diff?  
from ?

## - US Expressway 31

- Observed
- No icing on adjacent highway; No shut-downs; Some Overpass - no effect
- ~~Very~~ Very local
- w/in 1/2 mile
- only localized impact - on some of the trees reg. & died (w/in 50 yrs)
- ~~planes~~ <sup>had</sup> ~~shuts~~ <sup>down</sup> of mechanical drift towers → the of road drift

Petoskey + Gann exp. → of success of fixing problem of erosion to Observe cycle  
+ see there

of the offshore (Gann Lake) intake can have <sup>minimization</sup> ~~minimization~~  
of intake - (velocity reduced from ~0.5 to 0.01 ft/sec)

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